

USE OF THE MAGNETOACOUSTIC RESONANCE IN PLASMA CHEMISTRY
FOR ELECTRON HEATING

A.A. Ivanov, S. Krasheninnikov, P.N. Yushmanov

I.V.Kurchatov Institute of Atomic Energy, Moscow, USSR

Abstract

Magnetoacoustic resonance in a slightly ionized chemically active plasma is considered. It is shown that the electron component of the plasma is heated up to a few electron volts at rather low power outputs of an RF generator. When the energies are of the order of the dissociation energy the electron distribution function takes a pronounced non-Maxwellian form with sharply cut-off tail. The concentration of the molecules in the flux may reach 10^{16} cm^{-3} in this case the electrons provide essentially complete dissociation of the molecules.